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The Triple Whammy: Gendered Careers of Geographically Marginalised Academic STEM Women

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ABSTRACT

In this paper we explore how gender, non-standard job roles as well as location create a triple whammy affecting the visibility and therefore the career paths of women STEM academics. Drawing on data from interviews and surveys at a distributed university with locations across the UK, we examine the experiences of a group of 'Regional Academics' who are located at a distance from the main university campus, either in regional centres or as homeworkers, and show how gender intersects with distance and status to exacerbate inequalities. In their narrative accounts, they describe themselves as the 'glue that hold the bits of the university together', mediating between part-time tutors, students and other academics and researchers. We explore how career progression has been limited for these liminal academics, but how small steps to increase visibility and provide recognition for achievement can result in strategies that overcome these inherent obstacles.

KEYWORDS:

Gendered careers, academia, STEM, liminality, visibility, remote working

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INTRODUCTION

Gender and academic careers

Academic career paths have increasingly been recognised as highly gendered, the impact of which is reflected in the lower proportion of women at senior levels in most higher education institutions, particularly (although not exclusively) in the Science, Technology, Engineering and Mathematics (STEM) disciplines.

Traditionally, the job of an academic has included a mix of roles and responsibilities including teaching, research and administration (or service) and this mixed portfolio is still held up as the blueprint for the ideal academic career. However, this has increasingly become less ubiquitous in reality. Data from the Higher Education Statistics Agency (HESA) suggests that in the UK in 2012/13, only 50% of academic staff were in roles that included both teaching and research while a quarter were on teaching only contracts and nearly 23% were solely researchers (Locke, 2014). Career progression in academia is most often and successfully achieved by following what O'Connor et al (2015) have identified as the most dominant and 'ideal' career trajectory, which they call careerist masculinity. This is characterised by a strong career focus and a weak relationship commitment, often requiring a spouse to take the primary family care role during periods of career acceleration. Career ambition in this model is research focused and/or focused on achieving seniority in management. Increasingly university cultures which had in the past been based on peer group collegiality, have been replaced with managerialism and neo-liberal values. However rather than creating more gender equal work places, this has led to new constructions and configurations of masculinities in academia, which continue to privilege men's careers, reinforcing hegemonic masculinity within institutions (O'Connor, O'Hagan, & Brannen, 2015).

One of the factors contributing to gender disparity in career progression has been the tendency for women to undertake a greater proportion of teaching/ pastoral care work compared to their male colleagues (Barrett & Barrett, 2011). However, both in the UK and internationally, research is what is most likely to be rewarded and valued and the quality and quantity of research outputs is what is perceived to lead to academic career progression and 'success' (Clark & Knights, 2015). In the UK context this is manifested most clearly in the Research Excellence Framework (REF) through which universities are ranked by metrics about quality and volume of publication, with intense competition for individual academics to be counted as 'in', and potential career penalties for those left 'out'.

However, few universities have actively sought to create teaching only career pathways to the most senior roles. It is rare that the same promotional prospects are available through a teaching route compared with the more traditional research focussed academic career trajectory. This disparity may well deepen the gender imbalance in academia as teaching only careers are not viewed with equal status (Macfarlane, 2011). This has implications not only for salary and career progression

but also on quality of working life for those who consider themselves left behind (Fontinha, et al 2017).

Other factors such as part-time working and location, serve to exacerbate gendered career trajectories in academia, and can lead to a sense of peripheral and marginal identity. Part time work in general has been shown to have a negative effect on career progression (Connolly & Gregory, 2008; Durbin & Tomlinson, 2010; Eagan, Jaeger & Grantham, 2015; Herbers, 2014). Similar to patterns of part time work in other occupational sectors, women form the largest percentage of part-time academic staff in UK higher education institutions (Locke, 2014). Furthermore, the gendered disparity between research and teaching focused careers is more pronounced among part time workers in comparison with those on full time contracts, as shown in the following figures from the UK HESA statistics.

“Among those on full-time contracts, over 60% teach and research, just 9% only teach and nearly 30% are research-only. Whereas, among part-time academics, 30% both teach and research, over 57% only teach and 12% only undertake research. In both cases, about 1% neither teach nor research.” (Locke, 2014)

Mobility, including the ability to relocate, is also considered a key component of a successful academic career with career enhancing opportunities available for those that are geographically mobile and able to relocate their families to enable career progression (O'Connor et al., 2015). This expectation of mobility can seriously penalise women whose location of work is often constrained by family and caring commitments (González Ramos & Bosch, 2012). This effect can be even more pronounced in organisations with multiple locations and especially for home based workers. While the availability of home working and flexibility of location has been shown to enable the successful combination of care and a sustainable career for STEM professionals (Herman and Lewis, 2012), there are distinctly different gendered effects associated with home and remote working (Hilbrecht, Shaw, Johnson, & Andrey, 2008). Moreover working across a distributed organisation creates challenges for those at the periphery and for workflow in distributed networked teams (Deshpande, Sharp, Barroca, & Gregory, 2016). Informal networking is recognised as a practice that maintains and reproduces gender hierarchies and power in academia and this is further exacerbated for those working away from the central campus (van den Brink & Benschop, 2012).

Thus, the ideal academic continues to be one who is focused primarily on research, so individuals whose work focuses on teaching, those who work part time, or those at a geographical distance experience a constant sense of not measuring up to this ideal. In contrast to this ideal non-conventional roles in academia can lead to a peripheral identity or 'occupational limbo'. Bamber et al (2017), in their study of teaching-only staff at research intensive universities in the UK, reported that these staff felt 'locked in to an uncomfortable state', facing social as well as structural barriers that meant they were not perceived as 'proper academics'. Using the concept of liminality they assert that teaching only staff find themselves in permanent liminality " *being neither-this-nor-that, or both-this-and-that*" and because of the ambiguous nature of their roles, finding themselves in occupational

limbo (Bamber et al, 2017). Academic identity can be fragile and those who do not conform to the ideal academic role often articulate a sense of being an imposter (Knights & Clarke, 2014 p. 341).

In this paper we argue that this marginalised status experienced by teaching focused academics who also work at a distance is gendered. Furthermore, the peripheral identity described above is more intense for women STEM academics who experience additional marginality due to their gender, leading to a triple whammy of disempowerment and invisibility.

WOMEN IN STEM ACADEMIC CAREERS

Faulkner (2009) highlighted the in/visibility paradox faced by women engineers who felt they had either to be engineers or women but whose identity could not be both at the same time. Similarly, Stienke (2013) has highlighted women scientists' sense of identity interference between their work and family roles. Thus, gendered exclusion increases the invisibility of women STEM academics who may already be marginalised due to part time or teaching focused roles. Indeed, it results in women STEM academics (especially if they are mothers) feeling that they have to work harder than other non-STEM colleagues or STEM men (Kmec, 2013).

A recent House of Commons Select Committee looked at women's employment in academic roles at British universities (Science and Technology Committee, 2014), confirming that structural inequalities were perpetuated by traditional processes and patterns of academic life. More so than in other discipline areas, academic career paths in STEM were recognised as highly gendered resulting in reduced numbers of women at senior levels. The report and a plethora of other evidence suggests that differential valuing of academic excellence linked to reward systems continues to privilege a traditional male career trajectory. Research continues to be given higher status than teaching and women tend to take on more responsibility for pastoral work and teaching to the detriment of their research outputs. However with increased managerialism universities operate increasingly in a culture of individualisation and competition (Morley, 2013; Teelken & Deem, 2013; White, 2015). In academia as in other STEM occupations, normative career patterns reward those who are full time and with uninterrupted service, while parenthood is often accommodated without making any changes to substantive work patterns (Herman & Lewis, 2012). Many STEM women however have frayed careers and unconventional career paths, which may include career breaks and periods of working part time.

In the UK there has been a high-level recognition of the gender disparity in career outcomes and opportunities for women, resulting in the widespread take up of the Athena SWAN Charter and awards across the university sector. These awards require universities and departments to undertake an in-depth audit of statistics and culture, and develop a set of actions over a three-year period to address gender disparities in recruitment, progression and outcomes for both students and staff. The awards are nationally recognised and offer a kite mark or badge for participating and award holding institutions.

Context for the study

The university in this study is a distance learning institution which operates over the four nations of the UK and therefore has a distributed workforce, while also maintaining a central campus. The university has a commitment to gender equality and holds an Athena SWAN Bronze award, as well as departmental awards in 5 of its 7 STEM schools. Students (who are mainly mature students in employment) learn at a distance using module materials that are developed by a team comprising of mainly academic staff with a centrally based contract. These central academics have typical university roles that include teaching, research and other service work. Their career progression is expected to follow the traditional trajectory for academic and research careers, moving from Lecturer to Senior Lecturer to Professor with a mix of these three functions. At the same time there are school and faculty managerial and administrative roles (Associate Dean, Head of School, Dean) which are based at the central campus and attract reward and seniority. Historically these post holders were 'elected' by peers at a school or faculty level but in recent years these have been filled by formal recruitment and selection panels.

There is also a unique academic role, the Regional Academic the majority of whom are not based at the main university campus. This group of staff are contracted to one of the university's regional /national centres, or (more latterly) employed as designated home workers. While the integration of the distributed workforce is widely incorporated into university policies and working arrangements including communication technologies for collaborative working, there is a sense to which regionally based staff experience marginalisation.

The Regional Academics have a different contract of employment to those employed at the central campus. One of their key roles is managing and developing a large number of part-time and temporary Associate Lecturers (ALs) who are the front-line tutors supporting students, whose employment is precarious in that it can be withdrawn if there are insufficient students. The AL role is however highly flexible and therefore potentially compatible with caring responsibilities. A previous study concluded that the part time AL role was instrumental in helping restore women's confidence following a career break and could offer a route back into a more conventional academic career path (Donovan, Hodgson, Scanlon, & Whitelegg, 2005).

There is a strong Regional Academic community and identity, however this also produces a sense of peripheral belonging to the organisation. Similar to other groups of 'non-academics' working in universities who experience symbolic invisibility (for example research administrators), they work at the interface between different parts of the university, and their contributions are often overlooked and not acknowledged (Allen-Collinson, 2006). Moreover, their lack of visibility is not only connected to the nature of the role but also exacerbated by their physically dispersed location. Thus, like teaching-only staff in research intensive universities, they are both 'inside' and 'outside' academia and can be seen to be occupying a liminal or limbo status (Bamber et al, 2017).

Regional Academics will also interact directly with students, particularly those who are struggling to ensure they get the support they need, be that academically or

pastorally. While this work is incredibly enjoyable and rewarding, it is also unpredictable and extremely time consuming often leaving less time for other areas of academic life. It is these other academic duties that are usually the ones which will enable career progression; however it is precisely the varied nature of the role and the interaction with many aspects of the university which are attractive in the Regional Academic role.

Working in regional centres or from home, with infrequent visits to the main campus, can also have an impact on career development due to reduced opportunities for progression through academic career routes or indeed other administrative and managerial roles within the organisational hierarchy. This is articulated literally by respondents who are frustrated by poor practice in the use of communication technologies by some central colleagues to enable remote participants to play an active role in meetings and committees. Indeed a recent culture audit of the organisation initiated by the senior management as part of an institutional change project, found that regionally located staff were 'out of sight and out of mind' (PecanPartnership, 2016). This lack of visibility also exacerbates power differentials between the centre and distributed workers and the report noted that relationships were characterised by 'deference to status and hierarchy'. The university was going through a period of major organisational change at the time of this study. Not only were academic units being restructured but the national infrastructure was changing with the merging and closure of a number of regional offices. The regional academics had, up until this point, been contracted to one of thirteen regional offices and the restructuring meant that many would become homeworkers. The faculty restructuring also highlighted many differences between individual schools in the way they used and supported their regional academics. The university had also recently updated the criteria for promotion with the aim of providing a range of profiles including teaching-only routes up to the most senior level. As the majority of regional academics were female a further motivation for this study was linked to the gender equality commitment of the university (as part of the institutional Athena SWAN action plan) to identify the career development support needs of women in these roles.

METHOD

Demographics

At the time of the study there were 74 Regional Academics in the Science, Technology, Engineering and Mathematics (STEM) Faculty of which 49 (66%) were female. These were a mixture of full-time (74%) and part-time (26%) staff; however of the part-time staff 85% were female (mirroring the pattern of part time working across the sector). There are six schools employing Regional Academics within the faculty structure and each school had a similar distribution of gender and part-time staff (Table 1).

The gender differences highlighted in the demographic data led to the initial research question - why did the Regional Academic role attract a greater proportion of women? The study was therefore designed to answer this question and also to understand more fully how Regional Academics felt their role was perceived within their school, faculty, university and wider academic community. Thirdly the study

aimed to disaggregate responses from different schools to identify whether there were differences in perception and roles at departmental level.

Number (col. %)	C&C	E&I	M&S	EEE	SPS	LHCS	Total (STEM Faculty)
Women							
Full time	7 (64)	9 (90)	9 (82)	1 (25)	1 (33)	6 (60)	33 (67)
Part time	4 (36)	1 (10)	2 (18)	3 (75)	2 (66)	4 (40)	16 (33)
Total	11	10	11	4	3	10	49
Men							
Full time	7 (87.5)	6 (100)	4 (100)	2 (67)	1 (50)	2 (100)	22 (88)
Part time	1 (12.5)	0	0 (0)	1 (33)	1 (50)	0 (0)	3 (12)
Total	8	6	4	3	2	2	25

Table 1: Number of full and part time staff split by gender in each of the following schools; Computing & Communications (C&C), Engineering & Innovation (E&I), Mathematics and Statistics (M&S), Environment, Earth Science and Ecosystems (EEE), Physical Sciences (SPS) and Life, Health & Chemical Sciences (LHCS)

Questionnaire

A questionnaire consisting of closed and open-ended questions was devised and a stratified random sample of 12 Regional Academics (3 from each of M&S, E&I, C&C and a pooled group for the remaining schools) were used to pilot the questionnaire. Eight responses were received and each respondent was followed up with a structured interview to explore the content of the questionnaire. This prompted a change in focus for the study and the full questionnaire was constructed to address the following areas:

- Understand why Regional Academics were attracted to the role and whether there are differently gendered motivations
- Identify key issues around career progression and appropriate support needed to achieve career aspirations
- Articulate the support that should be provided by their department and the wider University especially for those who were homeworkers.

This questionnaire was sent to all 74 Regional Academics, 47 of whom responded (64% response rate), with 14 partial completed responses and 33 complete responses, giving a 45% response rate based on complete responses. The open-ended questionnaires were analysed using comparative analysis with a modified NVivo classification. This resulted in the construction of themes which were followed up in two online focus group discussions.

Focus groups

The questionnaire included a question asking if the respondent would be happy to participate in a focus group, and 22 respondents agreed to take part. Two sessions were held online in a Blackboard Collaborate¹ room and were hosted by an experienced Focus group facilitator, 14 (of the 22) actively took part in these sessions. Working in online virtual classrooms was familiar context for the participants, so the use of online focus groups was felt to be both practically and methodologically the best option. The main objectives of the focus group were to explore the following themes:

- To gain more knowledge about the support needed for Regional Academics to work effectively away from the main campus, particularly for those who are designated homeworkers
- To identify barriers to career progression

Data findings were triangulated to assess the consistency of the statements presented, to corroborate the findings and for mutual confirmation (Flick, 1991; Kna & Breitmayer, 1991).

Sample

The distribution of the survey sample respondents over the schools is comparable with the split between schools for the 74 Regional Academics. Women and staff on part time contracts, are slightly over represented in the sample (Table 2); however the sample is large enough to be robust.

	Men	Women
Sample	10 (23%)	33 (77%)
Population	25 (34%)	49 (66%)
Contract type	Full time	Part time
Sample	28 (65%)	15 (35%)
Population	55 (74%)	19 (26%)

Table 2: Distribution of survey sample by Gender and Working Time contract status

Associate Lecturer study

The majority of Regional Academics in the sample had entered the role after working as temporary teaching-only Associate Lecturers (ALs). This entry route was found to be highly gendered. For example, within the School of Mathematics and Statistics, out of the 11 female Regional Academics, 10 had previously worked as an AL whereas only one of the four male Regional Academics had occupied this role. Therefore, a separate but parallel study was undertaken to understand whether, and how, becoming an AL was viewed and articulated differently in the careers of men and women (Hilliam, Bromley & Calvert, 2017). For this reason, we begin the results section with this data which will provide context for the career histories and ambitions of the Regional Academic study. The study was carried out in the School of Mathematics and Statistics, with 187 respondents (78 women and 109 men).

RESULTS

Career pathways to Regional Academics

The flexible nature of the Associate Lecturer role has previously been shown to be one of the reasons for the high proportion of women in these roles compared to other STEM academic jobs (Donovan et al., 2005). In particular due to part time and flexible hours, it can offer an effective entry for STEM qualified women back into academia after a career break. We examined the length of time that ALs had been in these posts, in order to test our assumption that this pattern of work was indeed being used as a career re-entry strategy.

Table 3 shows the gender difference in average length of time working as an AL. There was a wide range in the number of years' experience for these ALs with females averaging 13 years compared to 19 years for their male counterparts.

	All	Female	Male
Total number	187	78 (42%)	109 (58%)
Min	1	2	1
Max	46	45	46
Mean	16.6	13.3	19.0
Median	12	10	16

Table 3: Average length of experience working as an Associate Lecturer by gender (Source: Hilliam et al 2017)

	All	Female	Male	% Female
< 5 years	26	14	12	54%
5 to < 10 years	36	19	17	53%
10 to < 15 years	40	18	22	45%
15 to < 20 years	24	9	15	38%
20 to < 25 years	14	6	8	43%
Over 25 years	47	12	35	26%

Table 4: Number of years' experience of Associate Lecturers by gender ((source: Hilliam et al 2017)

Just over half of the ALs who had less than 10 years' experience were female, compared to nearly three quarters with more than 25 years' experience who were male. There are a greater number of women who have joined the institution as ALs in recent years (Table 4 and Figure 1). Possible explanations are that the teaching longevity of the male ALs is a legacy of having historically more male ALs than female. Alternatively, it may be that that female ALs see the role as a stepping

stone back into a previously stalled academic career.

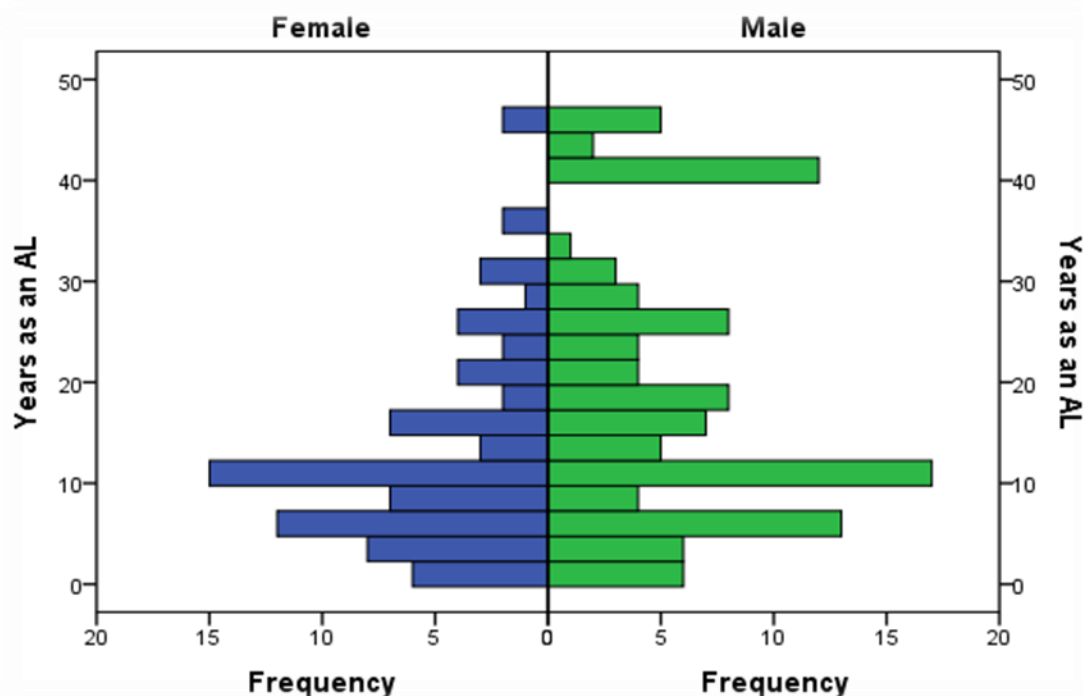


Figure 1: Years of experience as an AL split by gender (source: Hilliam et al 2017)

Transition from AL to Regional Academic

When asked about their motivation for becoming a Regional Academic, many of them indicated that they took up the role in order to increase job security, particularly if they had previously worked as an AL, and to re-engage with a more traditional academic trajectory. This transition from AL to regional academic is an obvious progression route for many ALs as a large proportion (between 50 and 60% depending on the school) of Regional Academic time is spent managing and providing staff development for ALs. The role of line management involves not only recruiting, but also providing appropriate staff development sessions, organising and monitoring their teaching (face to face and online) and correspondence tuition, in addition to carrying out their career appraisals. The AL's designated Regional Academic therefore becomes their link in to the University. This pivotal role is an extremely supportive one, where the temporary contractual nature of the AL role means that a strong bond is formed between AL and Regional Academic as manager and mentor. Indeed, Regional Academics are often referred to as the 'glue that holds the university together'.

Among the Regional Academics who had previously worked as ALs, exposure to the university and its ethos had been an important motivator for applying for the role. Many talked about their love of teaching and supporting students, something that the AL role had provided. However, they had wanted to be more involved in the institution in a variety of areas while still keeping this strong focus on student support. 95% of respondents considered meeting the teaching aim and mission of the institution as important or very important. Their personal reasons varied but

included family changes and the desire to combine practical with theoretical work. 93% wanted to gain experience in new areas and 59% thought that the flexibility of the role was important or very important.

In/visibility

Before 2016 the option to be a contractual homemaker had not existed and Regional Academics were contracted to one of thirteen regional offices. In 2016 the decision was taken to close the majority of these offices, leaving staff with the option to move their contract to the remaining five offices, central campus or become a homemaker. The homeworking option should in theory have increased the flexibility of the role, enabling staff to work flexibly around other caring responsibilities. However, the loss of regional offices also meant a loss of regionally based Regional Academic communities, as the following respondent explained:

I am very worried about the change to a home worker. [Regional academics] already feel marginalized as academics and by taking away regional centres as places for regional academics to network and share ideas this will be an even more isolated job. I think it will be increasingly hard for new [Regional Academics] to be able to learn the ropes in such an environment. (Survey respondent, female)

There was a need to recreate this support network through both face to face events, usually held on the main campus and through online meetings. The time taken to travel to the main campus for many of these staff involved at least one overnight stay and several hours travel. There was a lack of IT facilities on the main campus which meant that meetings with a mixed mode including both online and face to face participants often resulted in online participants not being able to fully contribute in meetings due to inadequate remote access. This resulted in staff wasting large amounts of time travelling for a meeting which may last one hour or feel frustrated with the inability to contribute remotely:

They do not acknowledge how far away and remote we are...they say in a humoristic way " Oh, this system does not work very well" people [on central campus] are not good at organising meetings online. They are not really investing in the infrastructure needed to do the meeting effectively, they laugh it off, you need to be serious about supporting the system. (Focus group participant, male)

The distance was also seen to be a barrier to career enhancing opportunities – lack of such informal networking chances meant these staff were overlooked and missed out on 'being in the right place at the right time'. Remote access to all meetings was mentioned as a necessity if this situation was going to change and all Regional Academics given equal opportunities to both engage in all areas of the university and increase their visibility, as this participant asserted:

I always get the impression that Regional Academics are purely seen as invisible roles. This does not make it easy to gain recognition or any sort of

value from anyone higher than faculty Associate Deans. (Focus Group participant, female)

Proximity and career progression

Historically, Regional Academics have been able to progress from Lecturer to Senior Lecturer at a similar rate to central academics – although their terms and conditions differ with respect to the amount of time allocated for research and scholarship. This had not been an impediment to progress as the promotion criteria gave separate advice and requirements for Regional Academics, allowing administration/ management to be considered with explicit and equal value to research. However, although theoretically possible, very few Regional Academics have been able to achieve professorial status. This has effectively meant a glass ceiling for those in this role. An alternative career path for some has been into management – through Associate Dean, Head of School or Director of Teaching positions – though these have mainly been taken by Regional Academics who live within easy travelling distance of the main campus. In the study 67% of Regional Academics mentioned the need to attend meetings on central campus as a barrier to their progression to senior roles with a number of female Regional Academics unable to spend extended periods away from home to enable attendance at face to face meetings. This again raised the need for remote access to meetings needing to be the norm and not the exception if Regional Academics who were geographically remote were to be offered the same opportunities to apply for these roles:

One significant barrier is that I am remote from the centre and there is a lack of good equipment for joining meetings remotely. There needs to be a cultural shift towards incorporating remote meeting participation as a normal way to work. (Focus Group participant, male)

Career progression and promotion

Another impact on Regional Academic career progression has been the recent change in university wide promotion criteria for academic and research staff which were adopted in 2015. The new scheme was devised to enhance career progression opportunities for all academics and in particular provide parity for those seeking a teaching focussed career. As such four pathways for promotion were created – research only, teaching and research, teaching only, knowledge exchange - but in this new scheme there had been no specific mention of the Regional Academic role with administration being replaced with a generic requirement to demonstrate leadership. In the first two years of the scheme very few Regional Academics felt confident about being able to meet the requirements and continued to apply under the old scheme which remained in place during the transition phase. In the subsequent year it became apparent that this change was contributing to a gender disparity in promotion figures.

Thus, a question arises about how academic gatekeepers think about scientific excellence. In this case it appears that promotions criteria continue to privilege the normative career path of full time research active central academics who conform to careerist masculinity (O'Connor et al 2017). When asked under which category

they would feel able to submit a promotion case, 67% of the Regional Academics responded with teaching, 16 % teaching and research, 13% knowledge exchange and only 5% research. Generally, respondents at both lecturer and senior lecturer level felt it would be hard to gain promotion with the new criteria as it did not adequately fit the Regional Academic role. This survey showed that while Regional Academics felt that the management side of their role was extremely important and worthwhile, they needed time to engage with other activities if they were to meet the new promotions criteria and that such activity would not provide sufficient evidence to meet the criteria of leadership, which the following respondent explained:

The type of work which scores points on promotions is stuff that can always be left until tomorrow – we are busy firefighting urgent things all the time so find it hard to get the time to do the high profile reward things. (Survey respondent, female)

Regional Academics were asked to estimate the proportion of time they spent on the four areas of research/scholarship, teaching, knowledge exchange and management; and were also asked to allocate their ideal proportion of time spent on each area. The difference in percentage points were then analysed by gender with male Regional Academics expressing a stronger preference for more research and scholarship and less managerial time (Figure 2).

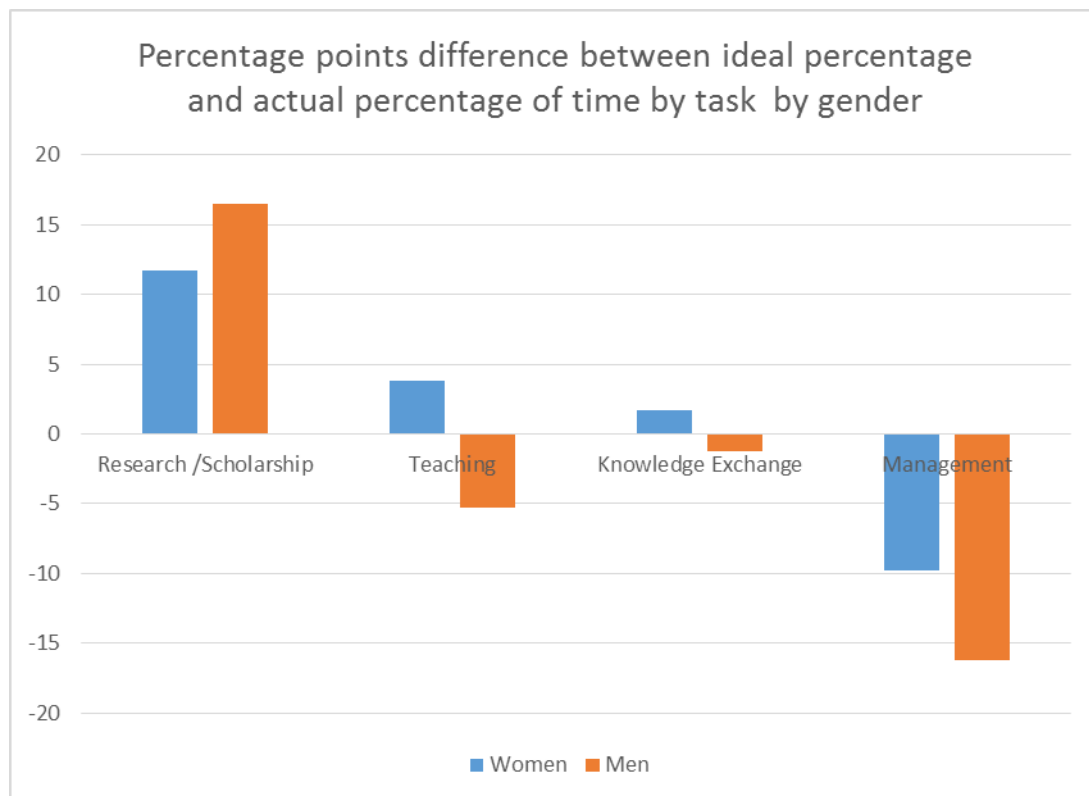


Figure 2 Percentage point difference between the ideal and actual percentage of time spent on each task, split by gender (source: Hilliam, 2016)

The role of managing academics is increasingly being seen as an extension of pastoral and 'service' work (and therefore by implication feminised), but assuming those managerial roles inevitably detracts from pursuing a traditional 'ideal academic' career (Peterson, 2016). This is clearly seen in the role of Regional Academics, as one respondent noted:

Regional Academics are labelled as academic but 50% of our work is management. And we are very skilled managers of a workforce that is difficult to manage. Whether you are a good or a bad manager, it is completely irrelevant within the University structure with the criteria for promotion. Management is however a very significant part of our role.
(Survey respondent, female)

The introduction of a teaching-focussed route for career progression was welcomed; however the metrics for promotion on these non-standard academic routes were perceived to be difficult to define. While research can be measured in numbers of REF-able output, excellence in teaching according to this respondent is much less quantifiable:

I think it will be harder (both perceptions wise and from an actual basis) for Regional Academics to get promotion under the new scheme because although the obvious routes are either teaching or the Knowledge Exchange profiles, these areas are less well defined and tested across the university. The metrics for the research (and to a lesser extent research and teaching) profiles are much better defined, easier to 'tick' (if you're working in research), and more familiar to central staff. (Survey respondent, female)

This work highlighted the need for more flexibility in the ways in which the criteria on these non-standard routes were measured, plus a recognition that there should be discretion for certain categories of staff to allow any shortfall in a set of criteria to be balanced by other types of achievement, including criteria from profiles other than the one under which the case is submitted. This final point is an important one for institutions developing non-research promotion routes, since academics need the scholarship time to develop as leaders of teaching rather than having heavy teaching only loads.

It is important that institutions see teaching pathways as teaching **focussed** pathways and not teaching **only** pathways, and provide appropriate time for these staff to grow, develop and disseminate their scholarly outcomes. Regional Academics are encouraged and enabled to undertake scholarship of teaching and learning through the Faculty's centre for STEM pedagogy². Support is given both financially and by enabling access to infrastructure, including a conference held each year which provides an accessible platform for dissemination and a mechanism through which measurable outcomes can be generated. Many of the Regional Academics are involved in these projects and are thus able to demonstrate scholarly outcomes such as publications and can be used as evidence for successful applications for Higher Education Academy Fellowships (the UK's main Higher Education teaching recognition scheme) as well as to fulfil promotions criteria.

The non-standard nature of the work of Regional Academics again raises the issue of the liminality of this group of staff and indeed teaching only staff across the sector. The lack of unique fit into the standard norm exacerbates the marginalisation, as career progression is increasingly limited by misalignment to the status quo (Bamber et al, 2017).

Strategies for success

In this next section we highlight an example of the career trajectory of one Regional Academic who has achieved progression to a senior role, illustrating how sustainable careers can be achieved despite structural constraints. However, it will be seen how visibility and presence has been a crucial strategy in achieving this outcome.

Several Regional Academics at the time of writing held positions of managerial responsibility in the faculty, these include three of the six Heads of School and two of the six Associate Deans. In each case a combination of visibility and proximity to the central campus was essential to securing and succeeding in these roles.

With the increased interest in the higher education sector for developing teaching focussed progression routes it is worth highlighting the career trajectory of one Regional Academic who is now Director of Teaching for one of the STEM schools; an equivalent position is held in many UK HE institutions.

This regional academic took an eight-year career break from academia while raising a young family. She had held both lectureships and a research position in two institutions prior to this decision. During the eight-year break she worked part time in the public sector, while becoming an AL with the university to maintain an academic connection and to continue to deliver university material. During this period there was an increase in the AL work, but retaining the flexibility of the role was vital. The continued link with academia was particularly useful during this time to sustain a small research profile. After eight years she was able to once again undertake a full time position, this time as a Regional Academic contracted to a regional centre.

It had been possible to maintain academic contacts in other institutions and she was therefore known in the subject area. In addition, the central campus was within commuting distance from her place of residence. This meant in the early stages it was possible to have a presence both in the regional and central campus. She took up several opportunities for leadership roles within teaching during the first few years. These roles enabled her to build up a comprehensive network across the university. Promotion to senior lecturer level was achieved after only four years in post, due to the range of teaching leadership roles she had undertaken.

The current position as Director of Teaching involves several meetings on the central campus. However, acquisition of equipment for remote access, which came about as a result of this study, means that many of these meetings can now be accessed remotely. This enables time for other activities, including scholarship of

teaching, which is necessary in the role of Director of Teaching to ensure the school's teaching evolves both in content and mode of delivery.

DISCUSSION

In this paper we have explored how gender, non-standard job roles as well as geographical location have created a triple whammy affecting the visibility and therefore the career paths of women STEM academics. At a time when many higher education institutions are developing new teaching focussed academic pathways, this work highlights some important concerns and considerations. The fragile identities (Knights & Clarke, 2014) as well as occupational limbo (Bamber et al., 2017) experienced and articulated by respondents in the study resonate with wider sector trends of precarity and lack of professional career routes. Traditional academic career pathways, albeit within the dominant ideal of career masculinity (O'Connor et al., 2015), encourage and enable career progression into leadership roles, but for this to be achieved, academics need time and space to engage with their subject, literature and the academic community.

Promotion criteria that are based on a quantitative measure of outputs may lead to a gender imbalance through individual progressions routes, especially if research and research outputs continue to be the only measurable evidence of success (Barrett & Barrett, 2011; Locke, 2014; Knights & Clarke, 2014). While increasingly new metrics for non-research careers are being introduced (for example via the Teaching Excellence Framework), consideration needs to be taken into account of how career progression can be achieved.

This requires a suitable workload model which will not only allow those with non-standard or teaching focused contracts to grow and develop, but is linked into the outcomes deemed appropriate for promotion and career progression. If this issue is not addressed by the academic community then the gender imbalance through a teaching route which often has unequal status will be in danger of deepening (Macfarlane, 2011).

Geographical distribution can also exacerbate inequalities as we have shown in this study. The Regional Academics have non-standard academic careers, but also work remotely from central campus which reduces their opportunities for career enhancing roles and access to informal and formal networks. This exacerbates existing sector gendered disparities in career progression (Gonzalez Ramos & Bosch, 2012). Thus effective methods, tools and cultures to include remote workers must be implemented to ensure parity of opportunity.

Following this study, the university invested in a number of round table devices enabling remote participants to actively take part in relatively large face to face meetings, plus providing suitable training for those who were to chair such meetings. As a result, remote staff no longer felt at a disadvantage if they were not present in the room, as the remote access was equally effective through this equipment. This not only freed up time, but enabled groups of staff to use this opportunity to start to rebuild effective communities. Regular online meetings were set up by and for Regional Academics to share ideas and discuss changes in

working practice. These have grown into a supportive network which is particularly important for new staff contracted as homeworkers.

This study has shown that by flexing standard and rigid academic career routes and providing the infrastructure to enable geographically remote staff to fully partake in all areas of university business, those women who were once not seen and overlooked can literally have their voices heard. If the sector as a whole is serious about such issues (for example in pursuing the measurement and badging of Teaching Excellence) serious attention needs to be given to support the careers of non-standard and marginalised academics. In an age where homeworking is becoming more prolific and large organisations are ensuring that there is remote meeting access for international colleagues, the HE sector needs to take a lead in establishing ways for staff to fully participate in university activity when they are regionally constrained. Not only does this reduce costly travel time for organisations, but such equipment enables informal networks to replicate the traditional coffee/water-cooler and corridor conversations.

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ENDNOTES

¹ Blackboard Collaborate is a virtual classroom tool used by this university for online tutorials. <https://www.blackboard.com/online-collaborative-learning/blackboard-collaborate.html>

² eSTEEeM. The OU Centre for STEM Pedagogy, is based in the Open University's STEM Faculty and provides funding and support for the scholarship of STEM teaching and learning.

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